Amendments to the Claims

1. (Currently Amended) A method comprising:

~~issuing a load~~allocating issued store instructions ~~to~~ within a store queue ~~an execution cluster~~ in ~~an out of~~ program order ~~processor~~;

allocating an entry for ~~the~~ an issued load instruction in a structure for tracking only load instructions advanced by software, if the issued load instruction utilizes speculative data; and

flagging a field in a reorder buffer to indicate that the speculative load instruction that uses speculative data is to be checked at retirement by a search of the structure to determine whether one of the in program order store instructions allocated within the store queue invalidates the speculative load instruction~~, the field in an entry tracking program order of the load instruction~~ at the time of retirement.

2. (Previously Presented) The method of claim 1, further comprising:

searching the structure to confirm the load data at the time of retirement.

3. (Original) The method of claim 1, further comprising:

invalidating the entry for the load instruction during a store instruction retirement if the store instruction conflicts with the load instruction.

4. (Original) The method of claim 2, further comprising:

flushing a pipeline if the structure for tracking only load instructions does not contain a valid entry for the load instruction at load instruction retirement.

5. (Original) The method of claim 1, wherein the load instruction is an advanced load instruction.

6. (Original) The method of claim 5, further comprising:

converting a basic load instruction into an advanced load instruction.

7. (Original) The method of claim 1, wherein the structure for tracking load instructions is an advanced load allocation table.

8. (Currently Amended) A device comprising:

a store queue to allocate issued store instructions in ~~an out of~~program order ~~processor~~ to track only store instructions;

a load ~~queue~~ structure coupled to the store queue to track only speculative load instructions and load instructions advanced by software; and

a reorder buffer to track program order of instructions, the reorder buffer including an entry to track program order of a load instruction, the entry including a field indicating the load instruction is to be checked at retirement by a search of the structure to determine whether one of the in program order store instructions allocated within the store queue invalidates the speculative load instruction at the time of retirement.

9. (Previously Presented) The device of claim 8, further comprising:

an instruction scheduler coupled to the store queue to schedule instruction execution.

10. (Original) The device of claim 8, wherein the load queue is an advanced load allocation table.

11. (Currently Amended) A system comprising:

a first processor having at least a 64 bit architecture comprising a first data cache, a set of execution units, ~~an out of order instruction~~ a scheduler coupled to the data cache and the set of execution units, a store queue coupled to the instruction scheduler to ~~track only~~allocate issued store instructions in program order, a load ~~queue~~ structure coupled to the store queue to track only speculative load instructions and in program order load instructions advanced by software, a reorder buffer to track program order of instructions, the reorder buffer including an entry to track the program order of a load instruction, the entry including a field indicating the load instruction is to be checked at retirement by a search of the structure to determine whether one of the in program order store instructions allocated within the store queue invalidates the speculative load instruction at the time of retirement;

a bus coupled to the processor; and

a system memory device coupled to the bus.

12. (Original) The system of claim 11 further comprising:

a second processor coupled to the bus comprising a second data cache.

13. (Canceled)

14. (Currently Amended) An apparatus comprising:

means for tracking only speculative load instructions and load instructions advanced by software; and

means for tracking all instructions in program order coupled to the means for tracking only speculative load instructions and load instructions advanced by software, comprising a field to indicate a load instruction is to be checked at retirement by determining whether an in program order store instruction invalidates a speculative load instruction at the time of retirement, the field in an entry tracking program order of the load instruction.

15. (Original) The apparatus of claim 14, further comprising:

means for tracking only store instructions coupled to means for tracking only speculative load instructions.

16. (Original) The apparatus of claim 14, further comprising:

means for flushing a pipeline upon detection that a speculative load is not present in the means for tracking only speculative loads at the time of load instruction retirement.

17. (Currently Amended) A machine readable storage medium having instructions ~~stored~~ encoded therein which when executed cause a machine to perform a set of operations comprising:

tracking only a set of load instructions relying on speculative data and load instructions advanced by software in a first data structure of ~~an out of order~~ processor; and

tracking a set of instructions in program order in a second data structure having a field to indicate to check speculation in a load instruction at a time of load instruction retirement by determining whether an in program order store instruction invalidate a speculative load instruction at the time of retirement, the field in an entry tracking program order of the load instruction.

18. (Currently Amended) The machine readable storage medium of claim 17, having instructions ~~stored~~ encoded therein which when executed causes a machine to perform a set of operations further comprising:

tracking only a set of store instructions in a store queue of the out of order processor.

19. (Currently Amended) The machine readable storage medium of claim 17, having instructions ~~stored~~ encoded therein which when executed cause a machine to perform a set of operations further comprising:

invalidating allocated load instruction entries during store instruction retirement.

20. (Currently Amended) The machine readable storage medium of claim 17, wherein the first data structure is an advanced load allocation table.

21. (Currently Amended) The machine readable storage medium of claim 17, wherein the second data structure is a reorder buffer.

22. (Currently Amended) A method comprising:

allocating a first entry for a load instruction in a reorder buffer, the first entry to track program order of the load instruction;

~~issuing the load~~allocating issued store instructions ~~to an execution cluster~~within a store queue in ~~an out of~~ program order ~~processor~~;

determining that it is unknown whether a memory address associated with a store instruction from the store queue that is prior, in program order, to the load instruction conflicts with a memory address associated with the load instruction;

utilizing speculative data in an execution of the load instruction ~~by the out of order processor~~, if it is determined that it is unknown whether the memory address associated with the store instruction conflicts with the memory address associated with the load instruction;

allocating a second entry for the speculative load instruction in a load table, the load table being a structure for tracking only load instructions advanced by software, the second entry including characteristics of an operation of the load instruction; and

flagging a field in the first entry in the reorder buffer, the field to indicate that the load instruction is to be checked in relation to the load table, to confirm accuracy of the speculative data used in the execution of the load instruction, at retirement of the load instruction by a search of the structure to determine whether one of the in program order store instructions allocated within the store queue invalidates the speculative load instruction at the time of retirement.